

DISCUSSION OF DATA: Time will be given to discussion of the data collected in our microclimate comparison of the three biotic communities. Please bring your data and notes representing your efforts to visually inspect and statistically analyze the data, and to interpret the results as directed by the instructions given in the “Lab Report” section of your laboratory procedure.

Review Suggestions for Unit I

GETTING THE “BIG PICTURE:” Your review for the exam should include an overview of the topics we have studied. This approach will help you grasp the flow of the material to see interconnections while at the same time permitting you to divide the information into manageable “chunks,” each with its own vocabulary and concepts. Here are some suggestions for getting an overview:

1. Read “**LOOKING BACK**” in each of the Study Assignments –they provide a “running thread” through our sequence of topics. You may wish to diagram the flow of topics.
2. “**CONCEPTS**” are included by Molles in each text reading assignment. Read each one carefully and read the same statements in **bold** under “SUMMARY CONCEPTS” at the chapter ends. For each “CONCEPT,” use your study notes, laboratory data and notes, and your memory based upon regular study during the past few weeks to do the following:

DIVIDE & MASTER:

1. Each “CONCEPT” statement is like a zipped computer file. Can you “unzip” it by first restating it in your own words or dissecting the statement and considering what vocabulary and terminology [*i.e.* structures, processes, properties, etc.] are necessary to understand this “CONCEPT?”

EXAMPLE: Chapter 2, the first “CONCEPT” states in part that “*The uneven heating of the earth’s spherical surface by the sun...*” To unzip this statement, consider such topics as the following -- effect of changing the angle of solar rays with increasing latitude, the role of the atmosphere and oceans as a result of this “uneven heating”, the processes such as radiation, convection, etc.

2. Under each “CONCEPT” or Study Assignment topic, *define* the terms (*i.e.* separate them from each other in your mind) then relate them to their context as defined by the “CONCEPT” statement or SA Title.

EXAMPLE: CONCEPT in Chapter 16: “*Species diversity is higher in complex environments.*” Go to Chapter 16, your notes and your Lab #2 Procedure and field notes/data and list concepts necessary to discuss the above concept. Here you can see SA #7, Study Question 1. has a good list already formed of such concepts. Have you defined these terms in your Journal (notes)?

3. “STICKY TERMS:” Identify vocabulary (structures, processes, parameters, conditions) that you are likely to confuse and work on distinguishing them. How do each relate to a larger “CONCEPT?”
EXAMPLES follow:
 - > Structures – Edge, Patch, Ecotone, Matrix, Canopy, Stratification
 - > Processes – Radiation, Reflection, Conduction, Convection, Acclimation
 - > Parameters – Net Radiation, Shannon-Weiner Index, Richness, Attenuation

LAB SKILLS TO MASTER:

You have at your fingertips a variety of study resources from which you can draw to match your learning style and study approaches. The PowerPoint slides from lectures (via WebCT for copyright purposes) and some that relate to our field laboratory studies (e.g. Lab Resources <http://www.cedarville.edu/academics/sciencemath/silvius/2130/2130labpage.html>) provide visual material. Field lab investigations #2 and 3 provide opportunities to analyze data, write a report and make application of concepts. As a result of these experiences and assignments, you should be able to complete the following lab-related activities:

1. Given a sample table of quadrat sampling data similar to our Tables 1 or 2 in Lab #2:
 - a. Complete the table with hand calculator (in parts of the table to show comprehension).
 - b. Interpret parameters to characterize the biotic community in question.
 - c. Write a short “explanatory legend” reflecting good scientific writing skills.
2. Describe how you would lay out a random sampling “grid” or “line transect” to obtain representative data from the biotic community or the physical environment (e.g. microclimate data).
3. Describe a landscape with respect to land uses, drainage, types of biotic communities, and animal habitat value (e.g. based upon your understanding of species diversity, plant height diversity, etc.).
4. Describe a biotic community such as the prairie restoration area using the “measuring sticks” discussed in Chapter 16 and SA #7. Illustrate the concepts of zonation and stratification by contrasting the prairie restoration with an adjacent agricultural field.
5. Perform a t-test on two data sets and interpret the results.
6. Interpret graphs or tables of data that are related to the microclimate of an area as described by solar radiation, soil temperature, etc. Write an “explanatory legend.”
7. Achieve a familiarity with commonly used terms used in a taxonomic key such as that in *Michigan Trees* or *Newcombs Wildflower Guide*. You will not be asked to use the key but to know terms such as simple vs. compound leaf, alternate vs. opposite or whorled, leaf lobe, sinus, venation, distinguish “flower” from “inflorescence.”